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BELIZE

ANNUAL REPORT

of the

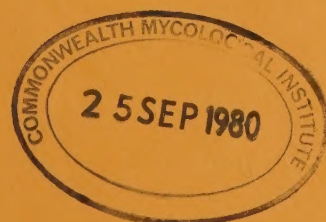
DEPARTMENT OF AGRICULTURE

MINISTRY OF AGRICULTURE AND LANDS

for the year

1975

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ANNUAL REPORT OF THE GOVERNMENT OF ALABAMA

FOR THE YEAR 1975

1. Weather Conditions

The year began with this important fact: temperature and rainfall. In January, the temperature was 55 degrees and the rainfall was 1.5 inches. This is a normal amount of rain.

The first of the year was a very dry one. The temperature was 55 degrees and the rainfall was 1.5 inches. This is a normal amount of rain. The second of the year was a very dry one. The temperature was 55 degrees and the rainfall was 1.5 inches. This is a normal amount of rain. The third of the year was a very dry one. The temperature was 55 degrees and the rainfall was 1.5 inches. This is a normal amount of rain.

TABLE OF CONTENTS

	<u>Pages</u>
Weather Conditions	1
Export Crops	1-4
Food Crops	4-7
Livestock Industry	7-10
Mechanical Services	10
Appendices	

The year ended with this fact: temperature and rainfall. In January, the temperature was 55 degrees and the rainfall was 1.5 inches. This is a normal amount of rain.

January, February and March were the warmest months of the year. The temperature was 55 degrees and the rainfall was 1.5 inches. This is a normal amount of rain.

Monthly rainfall figures recorded at various stations are contained in Appendix Table 1 of this report. The monthly rainfall figures are also contained in Appendix Table 2 and 3 of this report. The monthly rainfall figures are also contained in Appendix Table 4 of this report.

Appendix Table 1

THE 1975

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ANNUAL REPORT OF THE DEPARTMENT OF AGRICULTURE

FOR THE YEAR 1975

A. Weather Conditions:

The year began with cool temperatures and normal rainfall in January. All districts with the exception of Corozal had between three to seven inches of rain.

The dry season commenced in February and lasted until September in some areas. Rainfall during this period was about one-third of the normal. The usual heavy July thunder showers did not materialize, except in the Toledo District where scattered showers occurred mainly along the coastline. Rainfall in the north of the country was insufficient to sustain crop and pasture growth. There was hardly a crop or livestock enterprise that was not affected by the drought.

Heavy showers of rain fell in all areas of the country during September followed by torrential rains in late October, resulting in flooding of creeks and rivers, with some of the main roads becoming untrafficable. Crops planted along river banks were affected by flood waters, and considerable erosion was evident in Stann Creek District where 23.85 inches of rainfall was recorded in October.

Rainfall was much reduced in November with 2.87 inches in Corozal, 4.22 inches in Cayo and 8.60 inches in Toledo.

The year ended with dry conditions. In general, the weather was favourable for land preparation for the planting of corn, red kidney beans and sorghum.

January, February and December were the coolest months of the year. Day temperatures were highest from March to the end of July.

Monthly rainfall figures recorded at various stations are contained in Appendix Table I of this report. Average monthly maximum and minimum temperatures are set out in Appendix Tables II and III respectively. Average monthly humidity figures are contained in Appendix Table IV.

Sugar Cane:

The 1975

Unfavourable weather resulted in the crop getting off to a slow start. Sugar production for 1975 was 82,874 long tons compared to the record high of 88,897 long tons produced in 1974. The Tower Hill factory ceased operations on 6th July and the Libertad factory closed on 27th July. Production at Tower Hill was 42,400 tons of sugar and 15,485 tons of molasses from 418,670 tons of cane. Libertad factory produced 40,474 tons of sugar and 12,583 tons of molasses from 364,448 tons of cane.

Table 1. Comparative Sugar Production Statistics, 1975, 1974, 1973

	<u>1975</u>	<u>1974</u>	<u>1973</u>
<u>Tower Hill Factory</u>			
Tons cane Ground	418,670	416,219	335,175
Tons Sugar Produced	42,400	43,941	31,390
Tons Molasses Produced	15,485	14,358	12,963
TC/TS Ratio	9.87	9.47	10.68
<u>Libertad Factory</u>			
Tons cane Ground	364,448	407,855	383,055
Tons Sugar Produced	40,474	44,956	38,780
Tons Molasses Produced	12,583	12,684	13,167
TC/TS Ratio	9.00	9.07	9.88
<u>Total</u>			
Tons cane Ground	783,118	824,074	718,230
Tons Sugar Produced	82,874	88,897	70,170
Tons Molasses Produced	28,068	27,042	26,130
TC/TS Ratio	9.44	9.27	10.24

The export tax on sugar was changed from a flat charge of \$5.00 per ton to an ad veloren two per cent tax with a minimum rate of \$5.00 per ton. The increase in Government revenue from this source was put towards a fund to defray costs of an expanded programme of works in the northern districts.

The Belize Sugar Industries Ltd. announced that the production capacity of the Tower Hill factory will be increased by 25,000 tons by 1978. This will entail an investment of around £4 million Sterling or \$16 million Belize Currency. An additional 270,000 tons of cane will be required.

An agreement was reached between industrial users of sugar and the sugar producers whereby sugar for industrial uses would be obtainable at prices below the price of imported sugar. This resulted in a Statutory Instrument being passed which controlled the wholesale prices of local white and local brown sugar at \$25.00 and \$23.13 per sack respectively.

Agreement was reached on the price to be paid for sugar shipped to the EEC during 1975. The price for Belize sugar was fixed at £260 Sterling or \$1,040 Belize per long ton. Prices for the next seven years are to be related to world market prices, based on a minimum of £150 (\$600 Belize) per long ton. The decision to pay the agreed price of £260 per ton resulted in an increase payment to cane farmers, who received \$65.09 per ton in Corozal and \$59.43 per ton in Orange Walk compared to \$47.03 and \$45.08 in 1974, for cane. The total amount paid to cane farmers was in excess of \$47 million.

Exports of sugar in 1975 amounted to 81,875 long tons of which 44,319 tons were exported to the United Kingdom and 37,556 to the U. S. A. Exports were valued at \$79.5 million (Belize).

A delegation from the Belize Cane Farmers Association attended the fourteenth Annual Convention of the Caribbean Cane Farmers Association held in Jamaica in October. The delegation presented a paper on the transfer of lands from Belize Sugar Industries Ltd. to cane farmers.

Citrus:

The grapefruit crop was a record one of 534,888 contract boxes, showing an increase of 25% over the 1975 crop of 427,321 boxes. Orange production declined 27% from an all-time high of 1,100,996 boxes in 1973/74 to 800,775 boxes in 1974/75. The decline in orange production is partly attributable to the prolonged drought which resulted in fruits drying up on the trees. Also, some farmers did not harvest their whole crop due a shortage of labour. The grapefruit crop which ripens in August to October was not seriously affected by the drought in contrast to the orange crop which lasts from September to June. Salada Belize Limited processed 41% of the crop, while the Citrus Co. of Belize Ltd. processed 59%.

Table 2. Exports of Citrus Products, 1975

<u>Product</u>	<u>Quantity (lb.)</u>	<u>Approximate Value (\$)</u>
Fresh Oranges	144,600	2,655
Fresh Grapefruit	4,438,100	824,278
Orange Juice	3,007,400	705,050
Grapefruit Juice	713,100	118,640
Orange Concentrate	7,203,400	2,655,514
Grapefruit Concentrate	2,491,700	986,374
Grapefruit Segments	2,195,200	760,030
Orange Oil	47,000	53,798
Grapefruit Oil	5,700	6,964
TOTAL	20,966,200	7,107,123

Honey production was 298,390 pounds compared to 363,585 pounds in 1974 and 292,458 pounds in 1973. Total exports amounted to 349,278 pounds, part due to a carry-over of stock from the 1974 production. The export price ranged from £320 Sterling in the first half of the year to £335 in the latter half. Adverse weather conditions accounted for the fall-in production.

In 1975 the number of hives increased to 5,836 compared to 4,219 in 1974. Much interest was shown by beekeepers in Belize, Cayo and Toledo Districts where the greatest increase occurred. Table 3 gives the distribution of hives, apiaries, beekeepers and production as at December 1975.

Table 3. Distribution of Honey Production by Districts, 1975

<u>District</u>	<u>No. of Hives</u>	<u>No. of Apiaries</u>	<u>No. of Beekeepers</u>	<u>Honey Production 1975 (lbs.)</u>
Orange Walk	2,337	113	76	204,011
Corozal	1,923	60	33	51,419
Belize	350	35	30	3,460
Cayo	989	43	35	23,100
Toledo	237	24	24	16,400
	5,836	275	203	298,390

Wax Moth (*Galleria mellonella*) was the main pest in beehives. Paradichlorobenzene (Paramoth) was recommended to combat pests.

Beekeepers were taught how to prevent, recognize and control American Fowl Brood (*Bacillus larvae*) using a mixture of terramycin, sulphur and icing sugar.

July to October is the most critical period of the year for beekeepers. At this time, pests and diseases are on the increase due to heavy rainfall and high humidity. Artificial feeding is required during this period to maintain a good population for the honey flow in February to May.

Rice:

Rice paddy production in 1975/76 was severely affected by a prolonged drought and a heavy infestation of army worms as a result of which farmers lost large portions of their crops. Paddy production in Toledo plummeted downwards from the previous years 4,390,819 pounds to 2,469,768 pounds. As the country consumes over seven million pounds of milled rice per annum, the balance was supplied by Big Falls Ranch Ltd., of Belize District. Local farmers need to double their production in order to meet local demands. The price paid for rice paddy increased from \$8.50 a 100 pounds in 1974 to \$14.00 a 100 pounds in 1975 depending upon the quality.

Apart from Big Falls Ranch, the only mechanized rice operations were in the Toledo District where a total of 797 acres were cultivated. The remaining 2,143 acres grown in Toledo was under the 'milpa' system of shifting cultivation.

Table 4. Distribution of Acreage by District 1975

<u>District</u>	<u>Acres mechanized</u>	<u>Acres 'Milpa'</u>	<u>Total Acres</u>
Corozal	-	92	92
Orange Walk	-	652	652
Belize	4,800	140	4,940
Cayo	-	315	315
Stann Creek	-	125	125
Toledo	797	2,143	2,940
	<u>5,597</u>	<u>3,467</u>	<u>9,064</u>

Corn:

Corn production was reduced by 42% as a result of the drought - from a forecast production figure of fifty million pounds to 28 million pounds. Approximately 29,070 acres were planted, but many farmers had to replant their fields two and three times. This resulted in a scarcity of corn seeds towards the end of the planting season. In some areas there was poor germination while in others the young plants were stunted due to lack of adequate soil moisture. Early in October a shipment of ten tons of seed of the hybrid variety H-509 arrived from Mexico.

Most of the mechanized cultivation was accounted for by the Mennonite communities of Orange Walk and Cayo Districts.

The Marketing Board increased its guaranteed buying price from \$6.50 per 100 pounds to \$16.00 per 100 pounds. This move evidently produced results as purchases for June 1974 to June 1975 registered a record figure of 750 short tons. The highest figure for the last ten years was 180 short tons.

Table 5. Corn - Production and acreage cultivated by District, 1975

						<u>POUNDS</u>
Corozal ..	..	..	..	..	..	2,500,000
Orange Walk ..	..	..	..	..	..	8,500,000
Belize ..	..	..	..	..	..	350,000
Cayo ..	..	..	..	..	..	13,000,000
Stann Creek ..	..	..	..	..	..	80,000
Toledo ..	..	..	..	..	..	3,470,000

Army worms severely attacked young corn plants in August and September. Also, birds and racoons caused heavy damage to the crop in Belize and Cayo Districts.

Red Kidney Beans:

The area planted to red kidney beans in 1974/75 was 5,600 acres from which an estimated 2.8 million pounds of dried beans were harvested. The crop was affected by unusually wet weather during the months of December and January. Yields were low with an average of 500 pounds per acre. The Mennonite Community in Cayo District reported a production of 740,000 pounds from 1,738 acres.

Red Kidney Beans - Production 1974/75 by Districts in pounds

Corozal ..	..	..	..	..	..	150,000
Orange Walk ..	..	..	..	..	..	1,015,000
Belize ..	..	..	..	..	..	25,000
Cayo ..	..	..	..	..	..	1,250,000
Stann Creek ..	..	..	..	..	..	9,000
Toledo ..	..	..	..	..	..	150,000

The guaranteed purchasing price of \$21.00 per 100 pounds for the 1973/74 crop was increased to \$37.00 per 100 pounds for the 1974/75 crop.

Rust and web blight diseases affected yields. In Cayo District some 50 acres were lost due to these diseases.

Root Crops:

The drought resulted in a shortage of root crops. Planting of root crops had to be delayed until the onset of the rainy season in August. The scarcity of planting material hampered the planting of fields. Yams, cocoyams, cassava and sweet potatoes were grown for local consumption, mainly on small plots of less than one acre. Cassava was produced mainly in the Stann Creek, Toledo and Cayo Districts. The total production of these crops was as follows:-

Cassava		1,600,000 pounds
Cocoyam ..		600,000 pounds
Sweet Potatoes		480,000 pounds
Yams and yampie		120,000 pounds

Plantains and Bananas:

Plantains and bananas were cultivated for sale on the domestic market in all districts. The effects of hurricanes 'Carmen and 'Fifi' in 1974 were felt mostly in the northern districts where supplies were well below normal for the first four months of the year. Later in the year, approximately 50% of the plantain suckers in the country were lost because of the drought. As a result, the price of plantains jumped from five cents each to fifteen cents each. Throughout the year farmers devoted their efforts to planting new suckers to supply field where losses occurred.

Exports of bananas to the United Kingdom amounted to 35,144 boxes (42 pounds each) valued at \$200,197. Shipments of fruit had to be suspended in April because of an insufficient supply of high quality fruit. The industry was severely affected by the drought.

Watermelons:

One hundred and twenty acres were planted in 1975. Cayo and Orange Walk Districts accounted for fifty acres each. Watermelons were in abundant supply in March at which time prices ranged from 15 to 35 cents per pound.

Grain Sorghum:

At Spanish Look-out, Cayo District a yield of 2,000 pounds per acre was obtained from 489 acres. A further 200 acres planted later in the year matured in December. The Marketing Board offered a guaranteed price of \$15.00 per 100 pounds.

Tobacco:

Forty acres were planted by Caribbean Tobacco Company in the Cayo District. Eight acres were planted at Bermudian Landing and La Democracia in the Belize District.

Mango:

Tropical Produce Co. Ltd. exported 500 long tons of mangoes valued at \$116,164. Approximately 125 long tons were sold locally. Total yield is estimated at 1500 tons. Much of the fruit was lost due to a necrosis in the pulp, which was attributed to a physiological imbalance associated with the drought. Production in 1974 was 750 tons.

Vegetables:

Local production of vegetables continued to be supplemented by imports from Mexico and Guatemala. Most of the vegetables are planted in the cool months from November to February with peak production in March and April. The main vegetables grown were cabbages, tomatoes, peppers, pumpkins and squash. Cucumbers, lettuce and carrots were produced in limited quantities.

A few medium size vegetable growers with five to one hundred acres plots produced vegetables in the Cayo and Orange Walk Districts. Most growers cultivated plots of less than one-quarter of an acre. The Mennonite communities were the main producers of vegetables.

Table 6. Vegetable Production, 1975 (pounds)

Tomatoes	..	..	..	..	..	320,000
Cucumbers	..	..	..	..	..	120,000
Cabbage	..	..	..	..	..	270,000
Peppers (Hot and sweet)	..	..	..	..	..	150,000

Livestock Industry:

Cattle:

Of the commercial livestock, cattle have been hardest hit by the drought. Improved pastures stood up to the drought up to the end of April, but cattle on unimproved pastures began to lose weight as early as April. By the end of July, an estimated 200 head of cattle had died due to lack of adequate feed and water. By September, an estimated total of 525 head of cattle were lost, mainly in the Cayo District. Losses in the Northern districts were minimized through supplementary feeding of cane tops and chopped whole cane. Based on a cattle population of 45,000 head and an average weight loss of fifty pounds per animal, the loss of beef produced was 2,250,000 pounds, or a loss of around \$3 million to the industry.

Table 7. Imports of Dairy Products 1975

<u>Product</u>	<u>Volume (lb.)</u>	<u>Value (\$ Belize)</u>
Condensed and Evaporated milk	4,202,100	3,298,286
Powdered milk	2,894,300	3,698,633
Milk and Cream (fresh)	214,800	127,511
Butter	829,800	1,533,789
Cheese	1,968,800	2,981,404
TOTAL	10,109,800	11,649,623

An increase in the controlled price of beef was reflected in increased liveweight prices to farmers who received 33 cents per pound for good quality steers and 45 cents per pound for smaller animals and culled cows.

A Blackleg vaccination programme got underway in January and continued throughout the year. Early in January,

outbreaks occurred in San Pablo and Cayo District. Both outbreaks were quickly controlled, but 13 head were lost in the San Pablo area.

Pigs:

The shortage of corn caused feed costs to escalate resulting in a reduced production of pork. The control price was raised to 65 cents per pound liveweight in April. The pig population was estimated to be 17,000 head which is below the amount needed to supply the domestic market with fresh pork and processed pork products. However, export licences were issued for pigs over 225 pounds for which there was little demand on the local market. An export tax of \$30.00 per head was levied on pigs but, this tax was suspended in October:-

With few exceptions, pig production is confined to backyard type operations where the standard of management is extremely low. Lack of adequate numbers of quality breeding stock and the escalating costs of concentrated feeds are major factors inhibiting the expansion of commercial scale production. The main improved breeds used are the Large White, Hampshire and Duroc Jersey.

Practically all processed pork products such as hams, bacon, sausage, pigtail and lard (rendered pig fat) are imported. There is considerable scope for expansion of production for import displacement.

A total of 705 pigs were exported valued at \$154,674.

Poultry:

The Mennonite communities continued to be the main commercial producers of poultry, meat and eggs. Backyard type poultry operators with flocks of a dozen hens or more are a feature of most villages throughout the country.

With the rise in retail price to \$1.60 per pound in most districts of the country, production increased from the beginning of the year. Increased production of poultry meat in the latter part of the year was to some extent at the expense of egg production. Increasing feed costs coupled with the controlled price of eggs caused several egg producers to switch over to broiler production. A shortage of eggs resulted in the need for importation of Grade C eggs which sold at a retail price of \$1.75 per dozen.

Imports of dressed or killed poultry amounted to 323,000 valued at \$343,578. Exports of live poultry numbered 7,350 valued at \$27,890. Imports of eggs were 316,036 dozens valued at \$490,404.

Sheep and Goats:

These two classes of liveweight continued to play a minor role in the livestock industry. The drought did not have as serious an effect on these classes as in cattle. There were small increases in numbers of sheep as people seemed to acquire a taste for mutton. The major areas of production were Belize, Stann Creek and Cayo Districts. In the northern districts prices reached 60 cents a pound liveweight.

Animal Health:

Staff of the Animal Health Section were busy during the year with outbreaks of Swine Fever (Hog Cholera), and Blackleg in cattle.

In October an outbreak of Swine Fever occurred in the Pueblo Viejo - Santa Elena area of Toledo District. The Toledo District was placed under quarantine against the movement of pigs. Several pigs were destroyed and by the end of the year there were no new cases of the disease. There was a secondary spread of the disease to the Belize Slaughter House. All infected and contact pigs were slaughtered and the carcasses buried. Three weeks after the disposal of the infected pigs, no further cases were reported.

Blackleg in cattle caused the death of 13 head at San Pablo in Orange Walk. Other cases occurred in Cayo District but no deaths were reported. Animal Health officers vaccinated 11,526 head against Blackleg.

A total of 1,916 head of cattle in Cayo were tested for tuberculosis. All tests proved negative.

Three suspected cases of rabies in stray dogs were reported in Belmopan, one of which proved to be positive. The Ministry of Health stepped up its vaccination campaign in an effort to prevent further spread of the disease. One positive case of rabies in cattle was diagnosed in Cayo District.

In cattle, positive Brucella reactors were observed in two herds in the Cayo District. In October 825 serum samples were taken to test for Brucellosis.

Fowl typhoid in Cayo District and Fowl Paralysis in Orange Walk were diagnosed. Fowl Pox accounted for several deaths of poultry in Toledo.

External and internal parasites continued to be the major health problem in all classes of livestock.

Animal Production and Animal Breeding

Livestock research was centred at the Government Research Station at Central Farm.

Pure Bred Brahman Herd

(a) The Pure Bred Brahman Herd maintained a very good standard. Weaning weights (Appendix VI) were higher than most breeds and also higher than the average for the herd. Average birth weights and average daily gains were the same as that of 1974. Mortality rates were low.

Costa Rican Brahman (3/4 or better)

(b) The results obtained in 1975 in most cases were lower than in 1974, but this can be attributed to drought conditions. The heaviest calves at birth were those from Brahman dams and Charolais sires. The same was true for weaning weights and average daily gains. No difference was observed

between the 1/2 and 3/4 Charolais.

The next crossbreed of importance was the Hereford Brahman which performed better than the herd average, but lower than the Charolais Brahman cross. Fertility was good and mortality rates around 21/2 - 3%. One hundred cows from this herd were transferred to the Richmond Hill project.

Red Poll

(c) The quality of the Red Poll herd has declined over the years.

Brown Swiss (Dairy)

(d) Early in the year the dairy herd was tested for Tuberculosis and Brucellosis. Test reactions were all negative. A few cases of Mastitis were treated.

Dairy cows were fed with forage sorghum, merher grass and a high mineral and molasses mixture as supplement. The average milk production per cow per day was 12 pounds with a range from 8 to 28 pounds. The drop in milk yields may be due to a decrease in the amounts of dairy concentrate fed.

By the end of the year the herd numbered 38 head. Four cows were sold for slaughter and four heifers and three young bulls for breeding.

Work at Richmond Hill

One hundred acres were cleared and planted to Carib grass. A further 200 acres were cleared but not planted. With the transfer of stock from Central Farm and Corozal the cattle population rose to 368 head. A total of 148 calves were born.

Mechanical Services

The Mechanical Division of the Ministry of Agriculture offered mechanical services to farmers, in addition to providing these services for the various schemes run by the Department itself.

During 1975 the following services were rendered:-

Land clearing	-	1,046 acres
Wind-rowing	-	681 acres
Bush-hogging	-	2,347 acres
Rome ploughing	-	1,134 acres
Ploughing	-	1,794 acres
Harrowing	-	3,554 acres
Planting	-	2,097 acres
Cultivating	-	54 acres
Fertilizing	-	145 acres
Harvesting	-	733 acres
Rotavating	-	200 acres

The Land Clearing Unit also dug 35 ponds to supply water to farms and was engaged in road building work for various projects.

National Agricultural Show

A very successful Show was held at the Show Grounds in Belmopan on 20th and 21st April. Farmers from all districts participated with a wide variety of crops and livestock exhibits. Agriculture week was declared open by the Minister of Agriculture one week before the date of the Show.

MONTHLY RAINFALL AT VARIOUS STATIONS, 1975 (INCHES)

MONTH	YEAR	STARR CREEK AGSTAT	MELINDA FOREST	CABBAGE HAUL	SAVANNAH	COOMA CAIRN	AUGUSTINE	LANDIVAR	AMBERGRIC CAYE	DELICE AIRPORT	TOMBOO AGSTAT	CENTRAL FARM	BELOPAN
JANUARY		6.94	10.18	6.14	4.75	4.77	3.77	7.03	6.49	6.75	6.29	5.70	4.28
FEBRUARY		0.35	0.68	0.16	0.72	0.96	0.76	1.30	0.15	1.14	1.34	3.39	1.50
MARCH		1.50	1.85	1.50	0.72	0.38	0.92	0.70	0.18	1.04	4.69	1.89	0.14
APRIL		0.13	0.14	0.90	0.08	0.04	NIL	NIL	0.02	0.04	0.05	0.16	0.59
MAY		NIL	0.02	0.02	0.37	2.00	0.72	NIL	0.03	TRACE	1.66	0.20	0.18
JUNE		0.35	1.39	0.67	0.60	1.19	4.47	0.10	0.19	0.48	13.36	1.81	3.53
JULY		3.65	3.85	7.98	4.40	1.27	2.22	1.60	0.55	2.49	18.59	2.20	3.96
AUGUST		4.70	4.62	4.49	4.67	1.23	2.37	4.83	2.15	4.84	17.51	3.37	2.07
SEPTEMBER		4.43	16.19	15.27	10.24	10.19	9.77	13.63	10.76	16.22	10.40	13.14	12.02
OCTOBER		23.85	24.80	19.38	22.11	18.15	18.53	24.69	12.25	18.73	7.70	16.03	17.62
NOVEMBER		8.82	8.81	6.25	11.38	8.33	5.29	8.40	10.50	6.19	8.60	6.08	4.18
DECEMBER		9.78	10.75	6.60	7.48	4.70	3.90	6.67	1.48	5.77	5.25	3.37	3.95
ANNUAL TOTAL		64.47	83.28	69.36	67.52	59.21	52.72	65.95	44.75	63.60	105.94	57.34	54.02

APPENDIX TABLE I(a)

RAIN DAYS 1975

	STANN CREEK AGSTAT	MELINDA FOREST	CABBAGE HAUL	SAVANNAH	COOMA CAIRN	AUGUSTINE	LANDIVAR	AMBERGRIS CAYE	BELIZE AIRPORT	TOLEDO AGSTATE	CENTRAL FARM
JANUARY	16	19	15	16	16	13	19	16	19	11	16
FEBRUARY	3	7	1	4	4	5	4	2	4	4	5
MARCH	3	4	4	3	4	4	2	1	3	6	4
APRIL	2	2	3	1	1	0	0	0	1	1	2
MAY	0	0	0	2	3	3	0	0	0	2	2
JUNE	4	9	7	6	5	5	2	2	2	8	4
JULY	9	10	14	10	5	7	2	2	7	20	8
AUGUST	10	12	14	14	11	8	12	6	13	19	11
SEPTEMBER	14	20	19	15	21	19	17	20	19	18	19
OCTOBER	19	21	21	17	17	19	18	12	16	10	17
NOVEMBER	14	14	16	20	17	11	17	17	13	8	18
DECEMBER	12	11	15	15	14	13	13	7	12	9	16

APPENDIX TABLE II

1975 AVERAGE MAXIMUM TEMPERATURE (°F)

	STANN CREEK AGSTAT	HELINDA FOREST	CABBAGE HAUL	SAVANNAH	COOMA CAIRN	AUGUSTINE	LANDIVAR	AMBERGRIS CAYE	DELICE AIRPORT	CENTRAL FARM
JANUARY	86	79	81	81	71	82	81	80	81	85
FEBRUARY	88	83	83	85	75	85	84	82	84	89
MARCH	97	85	84	89	80	90	86	83	86	92
APRIL	93	87	86	90	84	92	87	84	88	94
MAY	95	91	91	93	87	94	89	87	90	98
JUNE	91	89	90	92	84	90	89	88	90	98
JULY	90	90	86	90	82	89	89	87	90	94
AUGUST	90	91	85	89	81	90	88	87	89	95
SEPTEMBER	86	83	83	87	77	85	86	85	86	N.A.
OCTOBER	91	82	81	83	76	83	85	84	85	N.A.
NOVEMBER	88	81	79	82	71	82	83	82	84	90
DECEMBER	85	79	79	80	70	79	81	81	81	85

APPENDIX TABLE III

1975 AVERAGE MINIMUM TEMPERATURE (°F)

	STANN CREEK AGSTAT	MELINDA FOREST	CABBAGE HAUL	SAVANNAH	COOMA CLARK	AUGUSTINE	LANDIVAR	AMBERGRIS CLAYE	BELIZE AIRPORT	CENTRAL FARM
JANUARY	72	71	61	69	60	62	71	73	68	64
FEBRUARY	73	74	71	70	61	61	73	74	70	63
MARCH	75	76	74	72	64	65	76	76	73	66
APRIL	76	77	76	73	65	67	78	78	73	66
MAY	77	80	78	76	66	68	80	79	76	70
JUNE	78	77	78	77	66	71	80	80	78	72
JULY	79	79	76	76	65	66	78	79	77	69
AUGUST	79	80	77	76	65	66	77	79	75	70
SEPTEMBER	76	72	73	74	64	63	74	76	74	N.A.
OCTOBER	78	71	72	73	64	68	74	77	72	N.A.
NOVEMBER	77	72	70	70	62	64	71	74	70	N.A.
DECEMBER	74	67	68	68	59	61	69	71	66	62

APPENDIX TABLE IV

1975 RELATIVE HUMIDITY PER CENTAGE

	STANN CREEK AGSTAT	MELINDA FOREST	CABBAGE HAUL	SAVANNAH	AUGUSTINE	DELIZE AIRPORT
JANUARY	78	85	91	79	79	83
FEBRUARY	77	79	92	80	70	77
MARCH	N.A.	81	92	76	63	77
APRIL	76	77	90	64	61	66
MAY	68	80	92	64	63	74
JUNE	75	91	77	66	70	73
JULY	74	80	92	68	66	71
AUGUST	79	80	93	72	67	77
SEPTEMBER	83	79	94	78	79	82
OCTOBER	81	82	94	85	81	86
NOVEMBER	83	82	92	79	82	88
DECEMBER	80	82	93	77	81	87

APPENDIX V

SLAUGHTER RETURNS 1975

	<u>CATTLE</u>		<u>PIGS</u>	
<u>MONTH</u>	<u>NUMBER</u>	<u>DRESSED WEIGHT (POUND)</u>	<u>NUMBER</u>	<u>DRESSED WEIGHT (POUND)</u>
January	550	147,112	551	24,478
February	485	154,931	481	20,236
March	353	153,596	463	38,237
April	516	157,487	546	44,259
May	496	149,009	599	37,234
June	495	117,321	604	33,870
July	379	151,200	470	45,053
August	475	156,495	503	44,220
September	533	169,571	589	46,256
October	521	124,225	561	37,348
November	503	155,092	233	38,720
December	492	168,945	325	41,482
TOTALS	5,798	1,804,064	5,925	451,390

APPENDIX VI

Comparison of Average Weaning Weights of Different Breeds

1971 - 1972 - 1973 - 1974 - 1975

BREED		Number of Calves				1971	Average Weaning Weight				1975
		1971	1972	1973	1974		1971	1972	1973	1974	
C. R. Brahman	Female	15	103	124	180		386.60	333.90	344.00	363.60	348.60
	Male	43	83	141	174		453.50	364.70	359.80	393.12	379.30
Pure Red Poll	Female	8	30	17	17		432.90	373.20	383.00	357.17	319.62
	Male	16	20	15	16		454.20	425.90	410.20	329.00	360.33
Pure Brahman	Female	3	16	15	15		410.00	365.80	362.60	363.26	350.85
	Male	8	15	20	13		423.60	397.70	397.50	428.92	405.64
Pure Brown Swiss	Female	1	10	6	5		310.00	283.30	340.50	371.80	245.84
	Male	49	9	5	6		378.50	347.20	334.40	406.83	311.14
Pure Hereford	Female	-	-	7	3		-	-	189.00	150.00	-
	Male	-	2	1	5		-	326.00	300.00	170.00	-

Average for all Females for 1975 on 177 head = 343.32 pounds

Average for all Males for 1975 on 194 head = 377.27 pounds

Average for all Male & Female 1975 on 434 head = 361.07 pounds

Comparison of Average Weaning Weight of Different Breeds

1972 - 1973 - 1974 - 1975

BREED	Number of Calves		Average Weaning Weights						
	1972	1973	1974	1975	1972	1973	1974	1975	
C.R. X Brahman	Female	103	83	72	100	333.90	316.60	345.40	284.71
	Male	83	100	61	103	364.70	344.60	365.77	368.41
C.R. X Red Poll	Female	6	12	34	7	353.60	384.80	353.17	323.57
	Male	1	8	36	6	333.00	400.80	392.88	359.33
C.R. X Charolais	Female	5	18	28	26	376.80	406.70	414.50	412.62
	Male	4	18	38	37	419.00	456.00	450.57	432.35
C.R. X Angus	Female	2	4	13	-	345.00	339.90	361.76	370.00
	Male	5	6	8	1	336.50	353.70	361.00	370.00
C.R. X Drown Swiss	Female	-	4	7	4	-	378.00	403.71	373.75
	Male	2	6	6	-	264.00	279.10	380.16	-
C.R. X Hereford	Female	-	3	17	9	-	383.00	366.17	348.67
	Male	-	3	13	8	-	370.60	374.61	398.13
C.R. X Indú Brazil	Female	-	-	9	-	-	-	356.88	347.50
	Male	2	-	12	3	286.00	-	398.91	-
Average Weaning weight									
C.R. X all Crosses	Female	116	124	180	146	333.09	344.00	363.60	348.60
	Male	97	141	174	158	356.09	359.80	393.12	379.30
Range (Males) 290 - 530 pounds									
Range (Females) 185 - 565 pounds									
Weaning age (8 months)									
Lowest Weaning weights Female and Male Brown Swiss									
Highest Weaning weights Female and Male Ch. X Brahman									

Range (Males) 290 - 530 pounds
 Range (Females) 185 - 565 pounds
 Weaning age (8 months)
 Lowest Weaning weights Female and Male Brown Swiss
 Highest Weaning weights Female and Male Ch. X Brahman

APPENDIX VIII

Comparison of Average Birth of Different Breeds

1971 - 1972 - 1973 - 1974 - 1975

BREED		Number of Calves					Average Birth Weight				
		1971	1972	1973	1974	1975	1971	1972	1973	1974	1975
Costa Rican	Females	52	79	133	148	119	56.00	57.20	56.00	56.29	53.34
Costa Rican	Males	71	100	132	149	160	56.30	58.33	60.16	60.78	56.45
Red Poll	Female	21	24	14	9	14	64.30	63.10	65.05	60.22	65.29
Red Poll	Male	24	19	26	9	16	68.50	68.40	72.01	79.33	70.06
Pure Brahman	Female	11	15	19	14	11	65.00	57.60	57.08	55.00	53.60
Pure Brahman	Male	14	16	16	16	15	66.40	57.90	59.02	61.56	57.67
Brown Swiss	Female	6	12	7	5	7	70.30	57.70	73.01	87.80	74.11
Brown Swiss	Male	11	14	7	5	8	81.40	75.40	83.08	81.20	89.50

Comparison of Average Birth Weights of Different Breeds

1972 - 1973 - 1974 - 1975

Costa Rican Brahman Crosses

BREEDS X BRAHMAN	Number of Calves			1975	1972	Average Birth Weight			
	1972	1973	1974			1973	1974	1975	
Costa Rican X Brahman	Female	79	80	91	108	57.30	53.01	54.10	51.20
Costa Rican X Brahman	Male	100	76	84	102	59.00	56.02	58.14	56.17
C.R. X Red Poll	Female	7	20	26	1	56.71	54.05	55.88	53.00
C.R. X Red Poll	Male	7	16	22	3	60.85	58.01	59.59	56.33
C.R. X Angus	Female	3	10	2	-	55.33	56.02	57.00	-
C.R. X Angus	Male	9	6	2	1	57.44	50.06	55.00	50.00
C.R. X Charolais	Female	9	16	21	26	61.50	57.02	65.23	61.23
C.R. X Charolais	Male	9	23	34	37	60.30	62.00	70.11	64.57
C.R. X Indú Brazil	Female	2	4	3	-	51.50	65.00	54.66	-
C.R. X Indú Brazil	Male	1	9	4	2	76.00	67.00	56.50	50.50
C.R. X Brown Swiss	Female	5	8	5	3	66.20	53.00	61.20	47.66
C.R. X Brown Swiss	Male	1	9	4	2	58.60	58.00	47.33	56.50
C.R. X Hereford	Female	-	-	-	6	-	-	-	53.60
C.R. X Hereford	Male	-	-	-	10	-	-	-	54.10
C.R. all Breeds	Female	105	138	148		57.87	56.00	56.29	54.34
C.R. all Breeds	Male	131	132	149		59.19	60.16	60.78	58.45

